IN THE DRAWINGS

Please replace pages 1-7 of the drawings as originally filed with the attached replacement page. Applicants respectfully submit that the present replacement page do not add any new matter to the application.

REMARKS

In the Office Action, claims 1-9, 13, 15-21 and 49-52 were rejected and claims 10-12, 14, 53 and 54 were objected to. Claims 22-48 were earlier canceled. By the present Response, claim 49 is amended. Upon entry of the amendments, claims 1-21 and 49-54 will remain pending in the present patent application. Reconsideration and allowance of all pending claims are requested.

Objection to the Drawings

The drawings were objected to in the Office Action, with particular emphasis on FIG. 1. All of the drawings have been recast in more formal versions. The drawings are now believed clearly to conform to the applicable rules and practice. Withdrawal of the objection is respectfully requested. No new matter has been added to the drawings by the revisions.

Rejections Under 35 U.S.C. § 102

Claims 1-9, 13, 15-21 and 49-52 were rejected under 35 U.S.C. §102 as anticipated by Stergiopoulos et al. (U.S. Patent No. 6,535,570, hereinafter "Stergiopoulos"). These rejections include rejection of all three pending independent claims 1, 15 and 49. By the present Response, claim 49 has been amended. The amendment essentially adds the recitation of a second set of corrective measures, and renders claim 49 similar in scope to the other independent claims 1 and 15.

In formulating the rejection of claim 1 (and by reference claim 15 and claim 49), the Examiner indicated that Stergiopoulos teaches all of the recitations of the claims. However, it appears that Stergiopoulos does not teach at least the application of a second set of corrective measures to a slice reconstructed in a series of digital tomosynthesis images. Applicants note in passing that the pending claims, and indeed the present application, specifically relates to digital tomosynthesis, which while similar to computed tomography, is not the same. Stergiopoulos deals specifically with computed tomography

imaging and not with digital tomosynthesis as indicated by the Examiner. However, because other important distinctions are believed to be present between the teaching of Stergiopoulos and the recited subject matter, applicants focus on those differences in the following discussion.

Stergiopoulos does appear to teach certain corrective measures carried out on input data. This input data would appear to be the actual acquired image data, however. In applying Stergiopoulos to independent claim 1 (and by reference to independent claims 15 and 49), the Examiner indicated that Stergiopoulos also applies "a second set of corrected measures to the slice", relying upon a passage of Stergiopoulos found at column 7, lines 13-17, 39-42 and 49-50. The cited passage, extending from line 13 in column 7 of Stergiopoulos fully through line 50 reads as follows:

> An obvious method to correct for organ motion during the image reconstruction process is to remove temporal amplitude and phase differences due to organ motion between the spatially overlapping projection images. Ideally, this correction method corrects the projection images with respect to the first acquired projection image. This is equivalent to moving all projection images into a same time instance, that is, all line segments along the diagonal being moved into one line parallel to the horizontal axis as shown in FIG. 3b. Unfortunately, this method does not produce satisfactory results because of the very large number M of projection measurements acquired in CT scans. As a result, errors generated during correction of each projection measurement propagate to the correction of the following projection measurement. The error propagation during image reconstruction leads to a significant error accumulation covering all useful information.
>
> A method to remove motion artifacts in image reconstruction of CT scans according to the invention uses an adaptive processing scheme, in particular, an adaptive interferer canceller. Details concerning the adaptive processing scheme are disclosed by the inventor in "Limitations on towed-array gain imposed by a nonisotropic ocean", published in Journal of Acoustic Society of America, 90(6), 3131-3172, 1991, and in "Implementation of Adaptive and Synthetic-Aperture Processing Schemes in Integrated Active-Passive Sonar Systems", published in Proceedings of

> the IEEE, 86(2), 358-396, February 1998. The adaptive interferer canceller is useful when an interferer is accurately measured. Using tracked organ motion as interferer, the adaptive interferer canceller is an ideal tool for removing motion artifacts from reconstructed images of CT scans. Sensor time series, that is, a series of measurements of one sensor at different time instances, are treated as an input signal of the adaptive interferer canceller algorithm, wherein the input signal comprises noise due to organ motion. *The organ motion tracked by the spatial overlap correlator is introduced into the adaptive interferer canceller algorithm as interference noise. The adaptive interferer canceller algorithm then removes the interference noise from the input signal.*
>
> Stergiopoulos, column 7, lines 13-50 (emphasis added).

This passage clearly relates to correction of motion artifacts. However, the passage also clearly relates to management of such artifacts by introducing interference noise and removal of noise "***from the input signal***."

Applicants submit that only reasonable reading of the passage, and of Stergiopoulos in general, is that motion artifacts are removed from the input signals themselves. That is, the motion artifacts are treated as a first corrective measure, but no additional corrective measure appears to be performed on the image slice that is reconstructed based upon the input signal. As specifically recited in claim 1, and as also now recited in claims 15 and 49, the claimed invention requires the application of a second set of corrective measures to a slice through the subject that is reconstructed from the series of images. At least this element of the independent claims would appear to be completely missing from Stergiopoulos insomuch as the motion artifact correction performed as set forth in column 7 is not performed on an image slice reconstructed from the collected image data.

Because Stergiopoulos clearly does not teach at least one element of each of the independent claims, then, the reference cannot possibly anticipate those claims. Claims 1, 15 and 49 therefore believed to be clearly patentable over Stergiopoulos.

The Examiner rejected many of the dependent claims as also anticipated by Stergiopoulos. While these claims are also believed to be clearly patentable for certain of the subject matter they separately recite, they are also patentable by virtue of their dependency from an allowable base claim. Accordingly, their reconsideration and allowance are also requested.

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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